

FEDOROV, VIKT.K.

Some results of studying typological properties of the higher nervous activity in animals. Dokl. AN SSSR 142 no.6:1432-1435 '62. (MIRA 15:2)

1. Institut fiziologii im. Pavlova AN SSSR. Predstavleno akademikom V.N.Chernigovskim.
(NERVOUS SYSTEM)

S/241/65/008/003/002/003
D296/D307

AUTHORS: Alekseyeva, M.S. and Fedorov, V.K.

TITLE: Study of the higher nervous activity in three generations of rats after exposure of the first two generations to gamma radiation emitted by Co^{60}

PERIODICAL: Meditsinskaya Radiologiya, v. 8, no. 3, 1963, 50-57

TEXT: 17 male and female rats from the Wistar strain with nervous processes of equal mobility were selected. Four males and 4 females were exposed to gamma radiation by means of RYT-400 (GUT-400) apparatus in a dose of 5 r daily for 10 days, i.e. a total dose of 50 r, and 4 other males and 4 other females served as the control group. In both groups 6 pairs with about equal nervous process mobility were again selected from the first, F_1 , generation. The F_1 generation of the experimental group was again exposed to radiation. The progeny of the second generation, F_2 , was exposed in a similar manner, and again 6 pairs each were selected from this and the non-irradiated control group. The authors then studied the higher ner-

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S/241/63/008/003/002/003
D296/D307

Study of the higher ...

vous activity in the third, F_3 , generation. The first striking difference was observed in the number of animals in a litter: an average of 6 in the experimental and of 9 in the control group. No difference was found in the weights of the progeny rats. The higher nervous activity was investigated by the method of Glebovskiy and Fedorov (Zh. vyssh. nervn. deyat. v. 4, no. 4, 581, 1954) which is based on an electrical defence reflex in which electrical shocks serve as unconditioned stimulus, and light and sound stimuli as conditioned stimuli. The animal chooses a path to the right or to the left in a labyrinth to avoid the stimuli associated with previous shocks. The mobility of the nervous processes was judged by the speed at which conditioned reflexes were found, and reversed by change of the 'meaning' of different stimuli. No significant difference was found in the first generation. In the F_2 generation 3 out of 71 rats and in the F_3 generation 12 out of 64 rats were excitable, aggressive, gave exaggerated responses to tactile stimulation, and 10 of these 15 animals suffered from spontaneous convulsions. No such animal was found in the control group. In the experimental group the formation of conditioned reflexes was slower than the con-

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Study of the higher ...

S/241/63/008/003/002/003
D296/D307

trol. in the F_2 generation, and both the formation and the reversal of the reflexes were slower in the F_3 generation than in the control group. There are 3 figures and 4 tables.

ASSOCIATION: Institut fiziologii imeni I.P. Pavlova, AN SSSR
(Institute of Physiology imeni I.P. Pavlov, of the AS USSR)

SUBMITTED: November 17, 1961

Card 3/3

ALEXSEYEVA, M.S.; FEDOROV, V.K.

Restoration of a previously elaborated stereotype in rats
with various mobility of neural processes. Zhur. vys.nerv.
deiat. 13 no.2:326-329 Mr-Apr'63. MIRA 16:9)

1. Pavlov Institute of Physiology, U.S.S.R. Academy of
Sciences, Koltushi.

(CONDITIONED RESPONSE)

MALYUGINA, L.L.; MIRONOVA, A.I.; FEDOROV, Vikt. K.; SHABAD, L.M.

Significance of typological characteristics of higher nervous activity in the genesis of tumors caused by cancerogenic substances. Zhur. bys. nerv. delat. 13 no.6:1097-1100 N-D '63.

1. Laboratoriya genetiki vysshay nervnoy deyatel'nosti Instituta fiziologii imeni Pavlova AN SSSR i laboratoriya eksperimental'noy onkologii Instituta onkologii AMN SSSR.

CHERNICOVSKIY. V.N., akademik, otv. red.; KRASUSKIY, V.K., red.;
FEDOROV, V.K., red.

[Methods for studying the typological characteristics of
higher nervous activity in animals] Metodiki izucheniia
tipologicheskikh osobennostei vysshei nervnoi deiatel'-
nosti zhivotnykh. Moskva, Nauka, 1964. 229 p.

(MIRA 17:10)

1. Akademiya nauk SSSR. Ob"yedinenyy nauchnyy sovet
"Fiziologiya cheloveka i zhivotnykh."

ALEKSEYEVA, M.S.; YELKIN, V.I.; FEDOROV, Vikt.K.

Comparative genetic studies on the mobility of the nervous system in rats with a high degree of sensitivity to sound stimuli and in Wistar rats. Zhur.vys.nerv.deiat 14 no.1:110-115 Ja-F '64. (MIRA 17:6)

1. Laboratory of Genetics of Higher Nervous Activity, Pavlov Institute of Physiology, U.S.S.R. Academy of Sciences, Koltushi.

YELKIN, V.I.; FETOROV, V.K.

Dependence of the formation of conditioned responses and of their alteration on the duration and rhythm of the estrual cycle. Zhur. vys. nerv. deiat. 14 no.3:527-531 My-Je '64. (MIRA 17:11)

1. Laboratory of Genetics of Higher Nervous Activity, Pavlov Institute of Physiology, U.S.S.R. Academy of Sciences, Koltushi.

ALEKSEYEVA, M.S.; FEDOROV, Vikt.K.

Effect of irradiation with small doses of Co⁶⁰ in parental species
on the higher nervous activity of rats in the first generation.
Nauch.sob. Inst.fiziol. AN SSSR no.3:1-7 '65. (MIRA 18:5)

1. Laboratoriya genetiki vysshey nervnoy deyatel'nosti (zav. -
Vikt.K.Fedorov) Institut fiziologii imeni Pavlova AN SSSR.

FEDOROV, Vikt. K.

Change in the conditioned reflex activity in mice depending on the degree of the alimentary excitability and age. Nauch.sob. Inst.fiziol. AN SSSR no.3:160-163 '65.

(MIRA 18:5)

1. Laboratoriya genetiki vysshey nervnoy deyatel'nosti (zav. - Vikt. K. Fedorov) Instituta fiziologii imeni Pavlova AN SSSR.

L 29177-66 BNT(1) SCTB DD

ACC NR: AP6018886

SOURCE CODE: UR/0020/65/160/003/0734/0736

AUTHOR: Fedorov, Vikt. K.; Obrastsova, G. A.; Mudzan, S. I.

ORG: Institute of Physiology im. I. P. Pavlov, AN SSSR (Institut fiziologii AN SSSR)

TITLE: Influence of vestibular stimulation² on the higher nervous activity of rats

SOURCE: AN SSSR. Doklady, v. 160, no. 3, 734-736

TOPIC TAGS: rat, conditioned reflex, neurophysiology

ABSTRACT: The higher nervous activity was characterized under the influence of vestibular stimulation on the basis of the following criteria: 1) number of absolutely correct reactions - running in the direction corresponding to the conditioned signal; 2) number of signal reactions - running according to the signal before the unconditioned stimulus was turned on; 3) number of erroneous reactions; 4) latent period of the reflex - time from the moment when the conditioned stimulus was turned on until the animal emerged from the maze; 5) time of the motor reaction - duration of running of the animal. Vestibular stimulation was produced by rotating the animal in a centrifuge at 60 rpm. After adequate vestibular stimulation, the indices of the conditioned reflex activity related to the selection of the direction of the motor

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L 29177-66

ACC NR: AP6018886

reaction were affected first and most intensively. The influence exerted less of an effect on the time parameters - the latent period and time of running. Vestibular stimulation disturbed the motor conditioned reflexes formed to sound signals to a greater degree than those formed to light signals. This must be considered in creating stereotypes for conditioned reactions directed toward increasing the effectiveness of rotational conditioning. The direction of the rotation was found to have no significance in the disturbances of the conditioned reflexes developed to signals from the optical and auditory analysors. This paper was presented by Academician V. N. Chernigovskiy on May 29, 1964. [IPR]

SUB CODE: 06/ SUBM DATE: 19May64 / ORIG REF: 004 /

Card 2/2

PB

FEDOROV, Vikt. K.

Present-day state of behavior genetics. Zhur. vys. nerv. deiat.
16 no. 1:38-51 Ja-F '66 (MIRA 19:2)

1. Institut fiziologii im. I.P. Pavlova AN SSSR. Submitted
April 5, 1965.

FEDOROV, Vlad'mir K.

1903-1963

1964

PSYCHIATRY

DECEASED

ACC NR: AT6036614

SOURCE CODE: UR/0000/66/000/000/0293/0294

AUTHOR: Nudman, S. I.; Fedorov, V. K.

ORG: none

TITLE: Effect of radial accelerations on the conditioned reflex activity of rats
[Paper presented at the Conference on Problems of Space Medicine held in Moscow
from 24-27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy
kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii,
Moscow, 1966, 293-294

TOPIC TAGS: space physiology, space medicine, conditioned reflex, biologic
acceleration effect, rat, central nervous system

ABSTRACT:

According to foreign authors, it would seem that half of aviation
catastrophes are accompanied by behavioral disorders. This study sum-
marizes the results of experiments conducted on rats exposed to accelera-
tions of 0.6 and 5.3 G. Higher nervous activity was studied using the motor-
defensive method of V. K. Fedorov (1964). In the first series of tests,
the effects of 0.6 G were studied. Animals were rotated at 60 rpm for

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ACC NR: AT6036614

12.5 min in 5 tests with 1 min intervals between tests. In the second series, animals were rotated for 1 min at 100 rpm (5.3 G). A total of 24 Wistar rats aged 6—8 mos were studied. Half the animals were given a simple task of halting to noise. The remaining animals developed a system of two reflexes to a noise and light stimulus. The criterion of conditioned-reflex activity was an increase in incorrect reactions which indicated a disruption of spatial orientation and time indices of the motor reaction.

It was found that both low and high accelerations caused statistically reliable changes in the conditioned-reflex activity of animals. While 0.6 G significantly disrupted spatial orientation, as reflected in an increase in incorrect reactions, and did not affect the time parameters of reflexes, 5.3 G significantly affected time parameters (latent period) but did not affect performance in a maze. The difference in the effects of 0.6 and 5.3 G was also manifested in the analyzer systems of the animals. At 0.6 G, reflexes to noise were affected to a greater degree than reflexes to light. During higher accelerations, no substantial differences were observed in the degree of conditioned-reflex disruption in various analyzers. Conditioned reflex aftereffects depended on the force of vestibular stimulation and the interval between the termination of rotation and the beginning of the investigation. The most significant shifts were observed when the first conditioned stimuli

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ACC NR: AT6036614

were applied. After that, conditioned-reflex activity normalized after 20—30 min. The effectiveness of the stress depends on the degree of complexity of the conditioned reflex stereotype. The most profound effect of acceleration was noted in animals with two conditioned reflexes compared to those with one.

Therefore, changes in the conditioned reflex activity of animals are a function of the intensity of acceleration and the interval between rotation termination and the beginning of examination, as well as the analyzer system of animals and the complexity of the system of conditioned reflexes.

[W. A. No. 22; ATD Report 66-116]

SUB CODE: C6 / SUBM DATE: 00May66

Card 3/3

FEDOROV, V.K.

Engineering method for calculating convective heat transfer
in nonseparated gas flow about a body. Inzh.-fiz. zhur. 8
no.2:198-203 F '65. (MIFA 18:5)

1. Institut stroitel'noy fiziki, Moskva.

FEDOROV, V. L.

FEDOROV, V. L.: "On the mechanism and significance of muscular weakening sports".
Moscow, 1955. State Central Order of Lenin Inst of Physical Culture imeni I.
V. Stalin. (Dissertations for the degree of Candidate of Biological Sciences.)

SO: Knizhnaya Letopis' No. 50 10 December 1955. Moscow.

FEDCROV, V.L.

Elements of voluntary relaxation of the skeletal muscles. Fiziol.
zhur. 48 no.3:357-359 Mr '62. (MIRA 15:4)

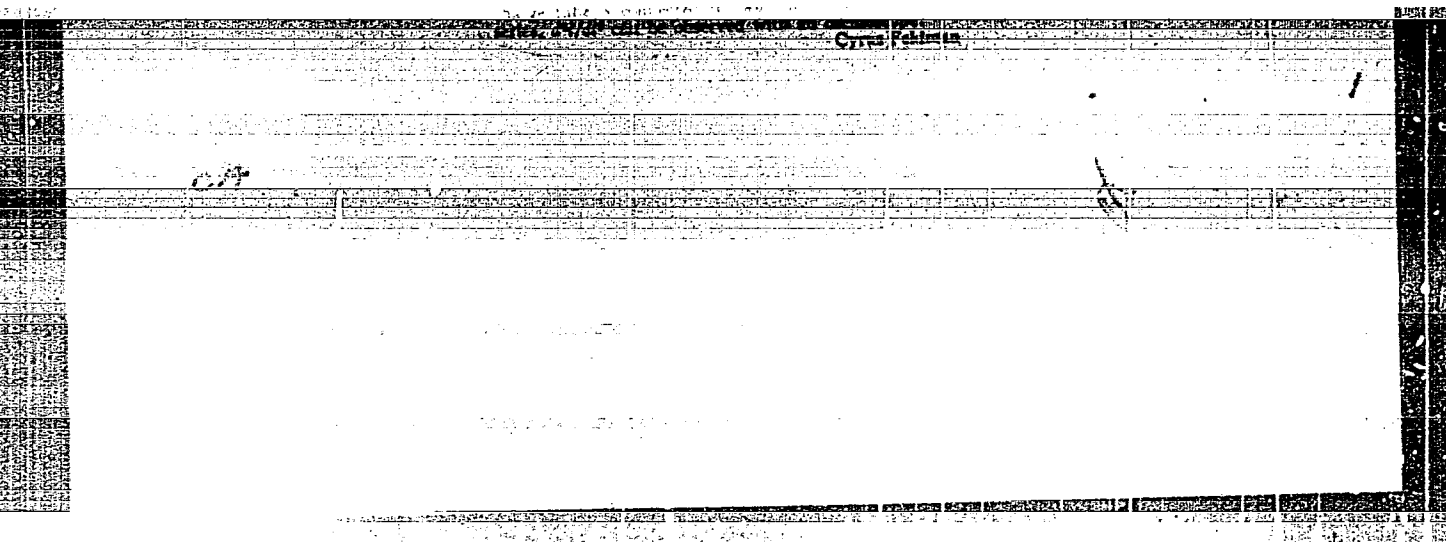
1. From the Division of Physiology, Central Research Institute of
Physical Culture, Moscow.
(MUSCLE)

17-10-1961, 1-12

1. The first part of the report is a summary of the work done during the period from 1 July to 31 August 1961. It is divided into two main sections: (a) a summary of the work done during the period from 1 July to 15 August 1961, and (b) a summary of the work done during the period from 16 August to 31 August 1961.

"APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R000412630009-6



APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R000412630009-6"

✓ 225 AEC-2244
ON METHODS OF INVENTION
FROM ZHU, JIAH. Piz. 21. 1955. 1955. 1955.
from Columbia Technical Translation (CCT) 1955. 1955. 1955.
White Plains, N. Y.
Analytical Chemistry

FEDOROV, V. [L.]

USSR/Physics - Acoustic device

Card : 1/1 Pub. 118 - 14/15

Authors : Fedorov, V.

Title : Sound leakage locator

Periodical : Usp. fiz. nauk 53/1, 155 - 156, May 1954

Abstract : A device for locating leakage acoustically in the vacuum system of various instruments is described. Three references. Diagram.

Institution : ...

Submitted : ...

FEDOROV, V. I.

BONCH-OSMOLOVSKIY, A.G. FEDOROV, V.I.

Theory of induction ammeters for high frequencies. Izv. tekhn. no. 4:
79-83 J1-Ag '57. (MLRA 10:8)

(Ammeter)

MOSKALEV, Aleksandr Gerasimovich. Prinimal uchastiye FEDOROV, V.L..
KUCHKIN, M.D., retsenzent; MEL'NIKOV, N.A., red.; LARIONOV, G.Ye.,
tekhn.red.

[Automatic regulation of the operating conditions of a power
system according to frequency and active power] Avtomaticheskoe
regulirovanie rezhima energeticheskoi sistemy po chastote i
aktivnoi moshchnosti. Moskva, Gos.energ.isd-vo, 1960. 239 p.
(MIRA 13:4)

(Power engineering)

L 13588-63 ZNA(k)/EMP(k)/ENT(1)/BIS/342/EEC(b)-2/ES(t)-2 AFFIC/ASD/ESD-3/
RADC/APGC/AFWL PI-4/PI-4 JHB/WG/IJP(C)/K/EH
ACCESSION NR: AP3004045 S/0139/63/000/003/0110/0112

AUTHOR: Fedorov, V. L.; Chou, Ping-k'um

TITLE: Determination of negative temperature from fluorescence oscillograms

SOURCE: IVUZ. Fizika, no. 3, 1963, 110-112

TOPIC TAGS: ruby laser, ruby fluorescence, population inversion, negative temperature, laser action determination

ABSTRACT: The feasibility of using fluorescence oscillograms to determine the value of negative temperature in a quantum-mechanical system is demonstrated analytically and verified from actual experimental data. Integrating the energy-balance equation over the cavity volume and considering positive and negative losses, the authors arrive by successive approximation at a spectral emission density expression which can readily be related to the oscillogram curves. Actual fluorescence oscillograms are shown for a ruby laser with a rod 4 mm in diameter and 78 mm long, pumped by a flash lamp driven by a 500- or 2200-joule discharge. Negative temperature is clearly evident in the case of the higher pump energy. Orig. art. has: 7 formulas and 2 figures.

Association: Leningrad Electrotechnical Institute

Card 1/2/

FEDOROV, V.L., inzh.

Method for obtaining continuous characteristics of the relative
increments of hydroelectric power stations. Elek. sta. 34
no.5:84-85 My '63. (MIRA 16:7)

(Hydroelectric power stations)

"APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R000412630009-6

THE FIVE, AGE, 12/11/80

APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R000412630009-6"

STEEN SOURCE: Izv. Inzh. Elektros. Inzh. v. 22, 1964, No. 20

obtained for the propagating waves of a ... realized

G. Korostelov.

SUB CODE: ZA

ENCLOSURE 00

Card 1/1

FEDOROV, V.L., inzh.

Improvement of a system for automatic frequency and active
power regulation in hydroelectric power stations. Trudy
VZEI no.25:34-45 '64. (MIRA 18:12)

I. O-811-67 EMP(1) SCTR DD/GD

ACC NR: AT0036677

SOURCE CODE: UR/0000/66/000/000/0372/0373

28

AUTHOR: Fedorov, v. L.; Vasyukov, V. G.

ORG: none

TITLE: Changes in the elastoplastic properties of human muscle under conditions of hypokinesia Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 372-373

TOPIC TAGS: hypodynamia, myology, human physiology, orthostatic test, muscle tonus, space physiology

ABSTRACT:

In investigating the effect of multiday hypokinesia on human skeletal muscles, a seismotonographic, tonographic, and tonometric study was made of several postural and phase muscles. The seismotonography method made it possible to record mechanical observations evoked by precisely measured blows on the muscle.

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L 08843-67

ACC NR: AT6036677

Sirman and Uflyand' s system of tonometers was used for the tonometric study.

The elasto-plastic properties of muscles were determined by the following indices:

- 1) frequency of distinct muscle oscillation;
- 2) logarithmic decrement of damping of distinct muscle oscillations; and
- 3) Sirman and Uflyand' s tonometer indices.

The phase muscles studied were the rectus femoralis and the biceps. The postural muscles were represented by extensors of the lumbar portions of the spinal column (right and left longissimus dorsi).

Each subject was examined before, during, and after hypokinesia. Both relaxed and tensed muscles were studied. The subjects were top-rated athletes specializing in non-cyclic (Group I) and cyclic (Group II) types of sport. More than 250 seismotonograms and 160 tonometer readings were analyzed.

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1. 00013-67

ACC NR: AT6036677

Analysis of the data obtained showed that:

- 1) Following hypokinesia, the frequency of characteristic oscillations of relaxed phase muscles decreased and the logarithmic damping decrement increased in both Group I and Group II subjects;
- 2) Following hypokinesia the logarithmic damping decrement increased in tensed phase muscles on both Group I and Group II subjects;
- 3) Following hypokinesia, the frequency of characteristic oscillations of phase muscles increased sharply in Group I subjects; in Group II subjects this frequency remained at the initial level;
- 4) Following hypokinesia, Group I subjects showed a decrease in the frequency of characteristic oscillations and an increase in the logarithmic damping decrement in postural muscles; no well-defined changes in these indices were noted in Group II subjects;
- 5) In the middle of the hypokinesia period (usually on the 4th or 5th day) a sharp increase in the frequency of characteristic oscillations of postural muscles was recorded; this was true of both Group I and Group II subjects;

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L 08843-67

ACC NR: A15036677

6) Tonometry data revealed no statistically reliable changes in muscle tone following hypokinesia, confirming the inadequacy of the tonometry method, which has several times been mentioned in the literature.

Thus, the study showed changes in the functional properties of phase and postural muscles due to multi-day hypokinesia. The clearest change was an increase in the plasticity (logarithmic damping decrement) and a decrease in the resilience elasticity (frequency of characteristic oscillation) of skeletal muscles. [U. A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 4/4

L 36307-66 EWT(1) IJP(c) AT

ACC NR: AP6015416

SOURCE CODE: UR/0051/66/020/005/0745/0749

AUTHOR: Perel', V. I.; Fedorov, V. L.

62
B

ORG: none

TITLE: Polarization of the 5016 Å spectral line of helium upon excitation by electron impact

2

SOURCE: Optika i spektroskopiya, v. 20, no. 5, 1966, 745-749

TOPIC TAGS: helium, spectral line, polarized luminescence, optic transmission, electron impact, *GAS PRESSURE, ELECTRON ENERGY, LIGHT POLARIZATION.*

ABSTRACT: The relationship between gas pressure and the energy of exciting electrons in the polarization of the 5016-Å and 4922-Å spectral lines of helium has been investigated. It was shown that the degree of polarization of the 5016-Å spectral line is sensitive to changes in pressure while the 4922-Å line shows no appreciable polarization sensitivity. The dependence of the 5016-Å line on the pressure is related to the capture of radiation at resonance transition $1^1S_0 - 3^1P_1$, which causes disorientation of the momentum at the initial state of emission 3^1P_1 of the 5016-Å spectral line. It is shown that the optical transmissivity of the helium 5016-Å spectral line will not produce a complete depolarization process, even if a complete radiation capture does occur at the resonance transition. Orig. art. has: 3 figures and 11 formulas. [KP]

SUB CODE: 20/ SUBM DATE: 31Dec64/ ORIG REF: 005/ OTH REF: 007

Card 1/1 *dy* UDC: 539.186.2

L 5461-66 EWT(1)/EPA(s)-2/EWT(m)/EPA(w)-2/ENP(t)/ENP(b)/EWA(m)-2 IJP(c)
ACCESSION NR: AP5017911 JD/JG/AT UR/0051/65/019/001/0147/0149

AUTHOR: Fedorov, V. L. 21.55

TITLE: Polarization of the 5,770-⁸ mercury line arising from electron impact 21.44.55 27

SOURCE: Optika i spektroskopiya, v. 19, no. 1, 1965, 147-149

TOPIC TAGS: mercury, spectral line, light polarization, electron interaction

ABSTRACT: This is a continuation of earlier work (with A. P. Mezentsev, Opt. i spektr. v. 19, 7, 1965) dealing with polarization measurements made on the spectral lines of mercury. Since the earlier result did not make clear whether the dependence of the polarization on the electron energy is governed by a primary excitation process or by some secondary processes, the author has made additional investigations and found that successive transitions determine to a significant degree the radiation polarization and may at least partially explain the complex character of its observed variation. The measurements of the

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UDC: 539.186.2+535.5:546.49

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L 5461-66

ACCESSION NR: AP5017911

polarization of the 5,770-Å mercury line were made as function of the energy of the exciting electrons and of the vapor density, using the same technique as in the earlier paper. The results show that the polarization changes mainly as a function of the energy of the exciting electrons, and that the successive transitions do play an essential role in the polarization. This is also confirmed by an analysis of the intensity of the light flux observed at right angles to the electron beam, as a function of the energy of the exciting electrons. The individual extrema of the polarization curves are briefly discussed. 'The author thanks Yu. M. Kagan and S. E. Frish for their interest in the work.' Orig. art. has: ^{44,55}2 figures and ^{44,55}1 formula.

ASSOCIATION: None

SUBMITTED: 06Jan65

ENCL: 00

SUB CODE: OF

NR REF SOV: 002

OTHER: 002

Card 2/2 *md*

L 3921-66 EWT(1)/T IJP(c)

ACCESSION NR: AP5017889

UR/0051/65/019/001/0012/0018

539.186.2:535.5:546.49

AUTHOR: Fedorov, V. L. Mesentsev, A. P.

TITLE: On the polarization of radiation excited by electron impact

SOURCE: Optika i spektroskopiya, v. 19, no. 1, 1965, 12-18

TOPIC TAGS: mercury, light polarization, electron interaction, optic transition, light excitation

ABSTRACT: To explain the discrepancy between the theoretical and experimental values of the polarization of mercury radiation, the authors developed apparatus for the measurement of polarization of radiation excited by an electron beam, with a specially designed prism depolarizer. Polarization was studied as a function of the energy of the exciting electrons for the following transitions in the Hg spectrum: 5461, 4358, 4047 Å ($6^3P_{2,1,0} \rightarrow 7^3S_1$); 4347 Å ($6^1P_1 \rightarrow 7^1D_2$); 5770 Å ($6^1P_1 \rightarrow 7^1D_2$); 4916 Å ($6^1P_1 \rightarrow 8^1S_0$); and 4078 Å ($6^3P_1 \rightarrow 7^1S_0$). The results show that the 4916 and 4078 Å lines are not polarized, in agreement with theory. The 5461, 4356, and 4047 Å lines are not polarized up to 0.4--0.5 eV above the excitation threshold, and polarized at higher energies. The polarization of the triplet lines is apparently connected with cascade transitions to the 7^3S_1 level from higher

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L 3921-66

ACCESSION NR: AP5017889

levels. The threshold value of the polarization differs little from theory. "The authors thank Yu. M. Iagan and S. H. Frish for interest in the work and a discussion, and L. Golovanovskaya for help with the experimental data reduction." Orig. art. has: 6 figures. ^{44/55}

ASSOCIATION: none

SUBMITTED: 13Apr64

NR REF SOV: 004

ENCL: 00

OTHER: 006

SUB CODE: 02

leh

Card 2/2

L 36439-66 EWT(1) IJP(c) AT

ACC NR: AP6015417

SOURCE CODE: UR/0051/66/020/005/0750/0752

AUTHOR: Fedorov, V. L.; Golcvanevskaya, L. E.

ORG: NONE

TITLE: Polarization of the spectral lines of helium during excitation by electron impact

SOURCE: Optika i spektroskopiya, v. 20, no. 5, 1966, 750-752

TOPIC TAGS: light polarization, helium, spectral line, electron bombardment

ABSTRACT: The polarization of the 4713, 5947, 4922, 6678, 5876, 4471, and 5016 Å lines of helium was investigated. Sealed pentode electron guns containing a BAU-type activated carbon getter and filled with helium served as the radiation source. The current density in the electron beam of the gun did not exceed $7 \mu\text{A}/\text{mm}^2$. For the 4713 and 5047 Å lines, the fact that the polarization is observed only above the excitation threshold leads to the assumption that the polarization is related to cascade transitions. For the 4922 and 6678 Å lines, the degree of polarization of both lines is close to theoretical threshold values. For the 4471 and 5876 Å lines, the difference in theoretical and experimental polarization values also is not qualitative in character. In the case of the 5016 Å line, the degree of polarization is very low as compared to the expected value, and is sensitive to pressure changes, making measurements

UDC: 539.186.2

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L 36439-66

ACC NR: AP6015417

2

difficult. The behavior of polarization near the excitation threshold does not differ from the theoretical dependence for all of the spectral lines of helium studied, with the exception of the 5016 Å line. Authors thank Yu. M. Kagan and S. E. Frish for interest shown in the work. Orig. art. has: 2 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 30Dec64/ ORIG REF: 004/ OTH REF: 002

Card

2/2 *JS*

MESHCHERSKIY, R.M.; SMIRNOV, G.D.; FEDOROV, V.M.; ROZINELAT, I.I.

Functional connections of the visual cortex with the external
geniculate bodies in a rabbit. Trudy Inst.vys.nerv.deiat.
Ser.fiziol. 7:78-90 '62. (MIRA 16:2)
(CEREBRAL CORTEX) (OPTIC THALAMUS)

KHARAS, Z.B., inzh.; FEDOROV, V.M., inzh.

Heavy-duty trailers for transporting heavy and large technical
equipment. Mekh.stroi. 20 no.5:28-31 My '63. (MIRA 16:4)
(Truck trailers)

FEDOROV, V.M., gorany inzhener.

Hypothesis concerning regularity in rock-breaking processes.
Ugol' 30 no.12:21-27 D '55. (MLRA 9:2)

1.Vsesoyuznyy ugol'nyy institut.
(Bering) (Geology, Structural)

FEDOROV, V. M.

GORNOPOL'SKIY, Abram Isaakovich; RAPOPORT, Pavel Isaakovich; ~~FEDOROV, V. M.~~,
nauchnyy redaktor; SEREBRENNIKOVA, L.A., redaktor; KUZ'MIN, D.G.,
tekhnicheskiiy redaktor

[Modern cutter-loaders] Sovremennye ugol'nye kombainy. Moskva,
Vses. uchebno-pedagog. izd-vo Trudreservizdat, 1956. 140 p.
(Coal mining machinery) (MLRA 10:7)

FEDOROV, V. M., Candidate Tech Sci (diss) -- "Investigation of the laws of breakdown of rock in drilling, explosion, and cutting". Moscow, 1959. 12 pp (Min Higher Educ USSR, Moscow Mining Inst im I. V. Stalin), 150 copies (KL, No 22, 1959, 117)

MESCHCHERSKIY, R.M.; FEDOROV, V.M.; SMIRNOV, G.D.

Efferent influences from the visual cortex to the lateral
geniculate nucleus in rabbits. Fiziol. zh. SSSR Sechenov 49 no.6:
649-658 '63 (MIRA 17:1)

1.. Institut vysshey nervnoy deyatel'nosti i neyrofiziologii
AN SSSR i Institut morfologii zhivotnykh imeni Severtseva
AN SSSR, Moskva.

ACCESSION NR: AP4022728

8/0020/64/155/002/0478/0481

AUTHOR: Gorgiladze, G. I.; Fedorov, V. M.

TITLE: The activating influence of vestibular irritation on the electrocorticogram

SOURCE: AN BSSR. Doklady*, v. 155, no. 2, 1964, 478-481

TOPIC TAGS: vestibular irritation, electrocorticogram, labyrinth polarization, electrical cortex activity, high amplitude low frequency, brain cortex wave, simultaneous polarization, one side polarization, hypnotic influence, pain irritation, light irritation, sound irritation, proprioceptive irritation, aminasin, nembutal, chloralose

ABSTRACT: In continuation of earlier work by the same authors, this influence was studied in the cat (25 specimens) by polarizing the labyrinth with a constant 0.1-0.5 milliamperes current for 1-20 seconds. The operation is described and includes treatment of the wound, and location and size of the electrodes at the various cortex regions, including the reference electrode on the forehead, the polarization electrode at the intact membrane of the fenestra rotunda (the bulla ossea having been bared on one or both sides), and the indifferent electrode

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ACCESSION NR: AP4022728

attached to the cervical muscles. An Alvar electroencephalograph was used. This irritation caused changes in the background electrical cortex activity; both low frequency - high amplitude and high frequency-low amplitude waves were registered in both hemispheres. Weaker polarization (0.05-0.07 ma) caused changes particularly in the parts referred to the vestibular analyzer, and higher (above 0.6 ma) spasmodic discharges, the latter apparently due to immediate influence on the brain itself. High-frequency, low-amplitude activity was also frequently observed in the reticular formation of the central brain. Control experiments are described which point towards selective influence on the peripheral part of the labyrinth only (no reaction upon excluding the labyrinth by introducing a mixture of alcohol and ether into the fenestra rotunda). The direction of the current was immaterial. Simultaneous polarization of both labyrinths with identical current caused no reaction, while slight changes on one side immediately produced the typical picture of desynchronization. Vestibular irritation was shown to provoke the most active reaction, compared to pain, sound or light irritation. The influence of hypnotics (intravenous route) under these conditions was also studied.

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ACCESSION NR: AP4022728

After determining the threshold for labyrinth polarization and pain reactions, both kinds of irritation were increased 3-4 fold. At a 10-12 mf/kg dose, aminasin caused the pain reaction to disappear while reaction to labyrinth polarization was retained. Similar results were obtained with a 5 mg/kg nembutal and 15 mg/kg chloralose dose. The former hypnotic depressed labyrinth polarization reaction at a 7-8 mg/kg, the latter at a 20 mg/kg dose. Based on the authors' and other workers' experience, the effect of sensory irritation on the ECG is seen to decline in the following order: vestibular, pain, proprioceptive, sound, sight. Orig. art. has 3 figures.

ASSOCIATION: Institut morfologii zhivotnykh im. A.N. Severtsova Akademii nauk SSSR (Institute of Animal Morphology, Academy of Sciences SSSR)

SUBMITTED: 14Sep63

DATE ACQ: 08Apr64

ENCL: 00

SUB CODE: CH

NO. REF. NOV: 005

OTHER: 012

Card 3/3

FEDOROV, V. M.

USSR

337.226.1.08 : 621.317.315.3

10158. An absolute method of measuring dielectric constants by means of the quarter-wave Lecher circuit.
V. M. FEDOROV, I. V. ZHILANKOV AND A. N. EFREMOV.
Zh. tekhn. fiz., 24, No. 4, 466-9 (1948) (in Russian).

The apparatus used was described in a paper by Zhilankov and Efremov (Abstr. 5925 (1952)). It has been found that formulae developed for the half-wave Lecher circuit for determining ϵ and $\tan \delta$ are also applicable for the quarter-wave circuit. The capacitance/unit-length magnitude for conductors at the end of the quarter-wave Lecher circuit has been found to be $C = \pi/2(1 + \sin \delta) \ln[(1 - \epsilon)/\epsilon]$. The method described is claimed to be suitable for determining ϵ and $\tan \delta$ of solid and liquid dielectrics in the metro and decimetre range. It is recommended to immerse well the leads of the circuit.

F. LACOMAN

FEDOROV, V.

11. Sep 53

USSR/Nuclear Physics - Mass Spectrometer

"Magnetic Mass Spectrometer Coupled With Wilson's Chamber," A. Alikhanyan,
Act Mem Acad Sci USSR, V. Kirillov-Ugryumov, N. Shostakovich and V. Fedorov,
Phys Inst im Lebedev, Acad Sci USSR and Phys Inst, Acad Sci Georgia SSR

DAN SSSR, Vol 92, No 2, pp 255-257

Spectrometer facilitates accurate measurements of the energy of a charged cosmic-ray particle and its tracing. It allowed the first detection of unstable particles called varitrons. Recently this spectrograph was coupled with Wilson's chamber and operated on the mountain peak Alagez at 3200 m altitude. Equipment and results are described. Indebted to B. N. Deryagin, M. M. Veremeyev, L. Bagdasaryan, G. Badalyan, D. Shkarlet. Rec 21 Jul 53.

269T85

EFDOREV, V

SECRET
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"APPROVED FOR RELEASE: 03/20/2001

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APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R000412630009-6"

U.S. 44

negative and on stopping gives rise to a single secondary minimum localization. The mass of the primer is estimated to be $940 \pm 50 m_e$. Two other types were observed in which negative secondary

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either a π^0 or a π^+ . The π^0 is a particle
primary of mass 1350 ± 150 m, which gives the

APPROVED FOR RELEASE: 03/20/2001

CIA-RDP86-00513R000412630009-6"

Stopping of heavy mesons. A. I. Alkhazov, V. K. Krut'kov, A. I. Podinov, and G. V. Pospelov. Zh. eksptl. i teoret. fiz. 43, 171 (1962) (Sov. J. Nucl. Energy, Part A, 7, 171 (1962)).

Abstract: The stopping of heavy mesons in lead was studied. The stopping range of a π^+ meson of momentum 4×10^3 e.v./c, max. range 4 ± 0.5 cm, and decay time in excess of 10^{-10} sec was observed. Three secondary particles were formed, thick, or the assumption of their being π -mesons, have a combined kinetic energy of ~ 60 m.e.v. A π^+ particle of momentum 3.27×10^3 e.v./c and mass 940 ± 50 m. was also stopped with the emission of μ^+ or ν -mesons. Another π^+ particle of momentum 4.43×10^3 e.v./c, range 2.3 cm. Pb. and mass 1020 ± 150 m. was stopped with emission of a secondary π^+ of range 2.8 cm. $< R < 6.85$ cm. Pb and a π^+ of range 70 cm. The latter was either a π^+ or a ν -meson.

FEDOROV, V.M.; MERZON, G.I.; DAYON, M.I.

Photometric method for determining the ionizing capacity of particles
in the cloud chamber. Izv. AN SSSR.Ser.fiz.19 no.6:750-752 H-D '55.
(MIRA 9:4)

1.Fizicheskiy institut imeni P.N.Lobedeva Akademii nauk SSSR.
(Cosmic rays) (Nuclear physics)

Fed. Gov., D. M.

USSR.

5448

LARGE RECTANGULAR WILSON CHAMBER WITH DOUBLE
EXTERNAL EXPANSION. M. I. Daisa and V. M. Fedorov.
Zhur. Tekh. Fiz. 22, 771-8 (1948) May. (In Russian)

Fedorov, V. M).

INSTRUMENTATION: CLOUD CHAMBERS

"Photometric Determination of Ionization in a Cloud Chamber", by V.M. Fedorov, Physics Institute imeni P.N. Lebedev, Academy of Sciences USSR, Priroda i Tekhnika Eksperimenta, No 2, March-April, pp 32-37.

Description of a method of determining the ionization of a particle, recorded in a cloud chamber by means of measuring the blackening of the image of its track on a photograph. An analysis of the factors that influence the dependence between the ionization of the particle and the blackening of the image of the track is made. The method makes it possible to increase the accuracy of the determination of the ionization to 10-14%. Reference is made to work by Leighton and Wanlass (Physical Review, 1952, 86, 426), Caldwell and Pal (Review of Scientific Instruments, 1956, 27, 633), Butterworth (Philosophical Magazine, 1955, 46, 884), Bjornerud (Review of Scientific Instruments, 1955, 26, 836), and Blackett (Proceedings of the World's Society, 1934, A146, 281).

Card 1/1

USSR/Nuclear Physics - Wilson chamber FD-2206

Card 1/1 Pub. 146-11/25

Author : Kirillov-Ugryumov, V. G.; Fedorov, V. M.; Deryagin, B. N.

Title : Rectangular Wilson chamber with two-sided expansion

Periodical : Zhur. eksp. i teor. fiz. 28, 603-607, May 1955

Abstract : The authors describe a rectangular Wilson cloud chamber with two-sided expansions which is convenient for use in conjunction with the massspectrometer. They thank Professor A. I. Alikhanyan for his guidance, and also M. M. Veremeyeva, V. A. Nikolayeva, G. D. Davimusa, S. G. Ryumina, and N. A. Golubchikova for their assistance. Two photographs are given of tracks of cosmic rays recorded in their chamber. [One photograph has been mutilated after insertion in the magazine.] Five references, including one USSR: A. A. Alikhanyan, V. G. Kirillov-Ugryumov, N. V. Shostakovich, and V. M. Fedorov, DAN SSSR, 92, 1953.

Institution : Physics Institute im. P. N. Lebedev, Academy of Sciences USSR

Submitted : April 27, 1954

AUTHOR: ALICHANJAN, A.I., SOSTAKOVIC, N.V., LADAJAN, A.T., PA - 2004
FEDOROV, V.M., DERJAGIN, B.N.
TITLE: On the Spectrum of the Masses of the Charged Particles of Cosmic Radiation.
PERIODICAL: Zhurnal Eksperimental'noi i Teoret.Fiziki, 1956, Vol 31, Nr 6, pp 955-970 (U.S.S.R.)
Received: 1 / 1957 Reviewed: 3 / 1957

ABSTRACT: The present work deals with the results of the measurements of this mass spectrum which were carried out in an altitude of 3200 m. These measurements were carried out with a magnetic spectrometer in connection with two WILSON chambers. In the stars which were produced above the measuring device protons, deuterons, pions, and K-particles were observed. Work is arranged as follows: Determination of the mass spectrum of the particles from momentum and range, measurements of the masses of cosmic particles in a magnetic spectrometer with a many-plate WILSON chamber, selection of trajectories, accuracy of the measurements of the masses of particles, light intensity, the mass spectrum, the determination of particle mass from scattering and range.

Summary: Two groups of particles are observed in the mass spectrum between pion and proton: K-particles with $\sim 1000 m_e$ and a group of particles with $m_e \sim 550 m_e$. If only those particles are selected which were produced in the matter above the device, the group of particles with the mass $\sim 550 m_e$ vanishes completely and the mass spectrum then consists of pions, K-particles, protons and deuterons. In
CARD 1 / 2

On the Spectrum of the Masses of the Charged
Particles of Cosmic Radiation.

PA - 2004

this connection the ratio of the abundance of K-particles and pions in the same interval of the ranges is 0,08. In the mass spectrum the authors observed a group of 11 particles the mass of which, determined from the range (as well as from range and scattering) amounts to 500 - 600 m_e . This is in contradiction to all measurements of the masses of cosmic particles hitherto carried out by means of a WILSON chamber and photoplates. The particles which belong to this anomalous group incide into the recording system from the outside just like myons. The fact that hitherto particles with $\sim 500 m_e$ have been lacking may be connected with the conditions for the selection of particles. As further data concerning 500 m_e particles have hitherto been lacking, a very careful interpretation of the aforementioned 11 traces is necessary. - According to the authors' opinion it is necessary, besides from determining mass from momentum, range, and scattering, to determine also the ionizing capacity of individual particles with great accuracy. It is then possible to determine the mass of particles by means of methods that are independent of one another, namely from momentum and ionization. It is only by such measurements that a definite decision concerning the existence of such 500 m_e particles is possible. The authors already started a new series of experiments in the course of which the ionizing capacity of the particle is determined before incidence into the WILSON chamber by means of multi-layer proportionality counters.

ASSOCIATION: Physical Institute "P.N.LEBEDEV" of the Acad.of Sciences, USSR
Physical Institute of the Acad.of Sciences of the Armenian SSR

PRESENTED BY:

SUBMITTED:

AVAILABLE:

CARD 2 / 2 Library of Congress

FEDOROV, V. M.

22. Alikhanyan-Alikhanov Magnetic Spectrometer Described

"Alikhanyan-Alikhanov Magnetic Spectrometer in Combination With a Large Rectangular Wilson Cloud Chamber," by M. I. Dayon, V. M. Fedorov, G. I. Merzon, and N. V. Shostakovich, Physical Institute imeni P. N. Levedev, Academy of Sciences USSR, Pribory i Tekhnika Eksperimenta, No 1, Jan/Feb 57, pp 3-10

"Describes a mass spectrometer built in 1953. A system of counters separated by layers of an absorber is replaced by a large Wilson cloud chamber. The first such combination of a mass spectrometer with cloud chamber was conceived by A. I. Alikhanov in 1952. The new system is distinguished from previous variations of the mass spectrometer in that it permits detailed study of the behavior of a particle emerging from a magnetic field." -- Authors' abstract

Construction details, circuit diagrams, operating characteristics, and results of some measurements made on the instrument are given. (U)

AUTHOR: Fedorov, V. M.

120-2-9/37

TITLE: A Photometric Determination of Ionisation in the Wilson Cloud Chamber. (Fotometricheskoye Opredeleniye Ionizatsii v Kamere Vil'sona.)

PERIODICAL: Pribury i Tekhnika Eksperimenta, 1957, No.2, pp. 32 - 37 (USER).

ABSTRACT: A method of determining the particle ionisation (as registered by a Wilson chamber) from photometric measurements on the images of tracks in a photographic emulsion, is described (Refs. 5 - 8). An analysis of the factors determining the relationship between the particle ionisation and the darkening of its image in the emulsion is made. The method increases the accuracy of ionisation determinations by 10 - 15% (Ref.8). The effect of the microphotometer slit size is discussed. Its optimum value is usually determined either empirically or in approximation from theoretical considerations. The slit length has no practical importance. The best value for the slit width was found to be 1-2cm. In the working exposure range the blackening of the photo-emulsion depended linearly on the logarithm of the light intensity, but the angular coefficient of this dependence γ (coefficient of contrast) Card 1/3 varies from point to point in the emulsion, and depends on

120-2-9/37

A Photometric Determination of Ionisation in the Wilson Cloud Chamber.

the emulsion itself. This difficulty may be obviated by exposing on to the plate a calibrated "reference black" (Ref. 14). Since tracks are formed at various depths of the chamber and are therefore photographed in practice with different magnifications, the influence of the magnification coefficient was determined (Ref. 15). The intensity of light scattered by a drop depends strongly on the scattering angle (Ref. 16). This may introduce errors of up to 40% in intensity measurements. With the use of chambers with side illumination the change in the relative light intensity is reduced, but still remains of the order of $1\%/1^\circ$. When the chamber is being worked in the magnetic field it is necessary to allow for a certain amount of defocussing. This can be done using equation 1. When measuring the specific ionisation by the method of drop count it is necessary to disregard the effect of particle agglomerations, corresponding to δ -electrons. It is difficult to assess correctly the effect of such factors during the measurements as the condensation efficiency, the contrast, and similar parameters cannot be controlled.

Card 2/3 It is usual, in practice, to compare the ionisation due

120-2-9/57
A Photometric Determination of Ionisation in the Wilson Cloud Chamber.

to an unknown particle with that of a known one, or to use special calibrations (Ref. 17). The main advantage of the method, compared with the visual method, is the possibility of automatic recording and of excluding all subjective errors. There are 19 references, 5 of which are Slavic.

SUBMITTED: February, 27, 1956.

ASSOCIATION: Institute of Physics imeni P. N. Lebedev of the Academy of Sciences, USSR. (Fizicheskiy Institut im. P. N. Lebedeva AN SSSR.)

AVAILABLE: Library of Congress.

Card 3/3

FEDOROV, V.M.
AUTHOR: Fedorov, V.M.

100-3-21/10

TITLE: A Valve for a Wilson Chamber (Klapan dlya kamery Vil'sona)

PERIODICAL: Pribery i Tekhnika Eksperimenta, 1957, Nr 3, p.104 (USSR)

ABSTRACT: A description is given of a large-area electro-magnetic expansion valve for use with a Wilson Chamber. It is similar to that described by Fusell in (Ref.1) but differs from it by the fact that, at an excess pressure of 2.2 atm, it covers an area 2 times larger than that covered by the valve described in (Ref.1). The valve is shown schematically in Fig.1. There are 1 diagram and 2 references, 1 of which is Russian and 1 English.

ASSOCIATION: Institute of Physics imeni P. N. Lebedev of AS USSR
Fizicheskii institut im. P.N.Lebedeva AN SSSR)

SUBMITTED: October 18, 1956.

AVAILABLE: Library of Congress.

Card 1/1 1. Cloud chambers-Valve 2. Electromagnetic valve

FEDOROV, V. N.

1782

ON THE MASS SPECTRUM OF CHARGED COSMIC RAY PARTICLES

A. L. Alkhodan, N. V. Blizniukovich, I. Dadarian, V. G. Fedorov, and B. N. Derislov (Academy of Sciences, USSR and Academy of Sciences, Armenia 162). Soviet Phys. JETP 4, 817-30 (1957) July.

Results of an investigation of the cosmic ray particles mass spectrum at 300 m are reported. The measurements were carried out by means of a magnetic spectrometer used in conjunction with two cloud chambers. Protons, deuterons, α mesons, and K particles were observed among the particles locally generated in situ above the experimental arrangement. The cases of K particles with masses of about 540 to 600 m, stopping in the lower chamber are discussed. In all these events, neither a star nor a shower was observed in the upper chamber. It was found that some of these particles entered the apparatus from the outside in a similar manner to the α mesons. (uwb)

Distr: 4E1c/4E3d

13
1957
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J. C. M.

21(0)

AUTHOR:

Fedorov, V. M.

SOV/30-59-10-18/51

TITLE:

Conference on Cosmic Rays

PERIODICAL:

Vestnik Akademii nauk SSSR, 1959, Nr 10, pp 77-78 (USSR)

ABSTRACT:


The International Association of Theoretical and Applied Physics held the VI International Conference on Cosmic Rays in Moscow between July 6 and 11, 1959. 180 delegates from 24 countries took part who represented more than 70 laboratories from all over the world. The members of the conference mainly dealt with the research of nuclear interactions at superhigh energies (10^{11} ev and more). From the Soviet delegation the group N. A. Dobrotin and N. L. Grigorov as well as the lectures by Ye. L. Feynberg are mentioned here. The S. N. Vernov group was the first to obtain the energy spectrum and data on the spatial distribution of the fluxes of nuclear active components of high energy, of the energy fluxes of the electron-photon component and of the μ -meson component. S. N. Vernov and A. Ye. Chudakov reported on the research work of cosmic radiation carried out by means of the second and third Soviet artificial earth satellite. S. N. Vernov and A. I. Lebedinskiy spoke about the mechanism of formation and

Card 1/2

Conference on Cosmic Rays

SOV/30-59-10-18/51

concentration of particles in the various strata of the atmosphere. The investigations of the various kinds of cosmic radiation were intensified in connection with the International Geophysical Year.



Card 2/2

ZHDANOV, G.B., glav. red.; IVANENKO, I.P., pom. glav. red.;
SYROVATSKIY, S.I., red. toma; GERASIMOVA, N.M., red.;
NIKISHOV, A.I., red.p ZATSEPIN, V.I., red.; KHRINOV, V.A.,
red.; DORMAN, L.I., red.; TULINOV, V.F., red.; FEDOROV,
V.M., red.; VAVILOV, Yu.N., red.; AEROSIMOV, A.T., red.

Proceedings of the Moscow Cosmic Ray Conference, July 6-11, 1959. Moscow.
Vol.3. 1960. 253 p.

(No subject heading)

ZHDANOV, G.B., glavnyy red.; IVANENKO, I.P., zam.glavnogo red.;
 SYROVATSKIY, S.I., otv.red.toma; KHRENOV, B.A., zam.red.toma;
 GERASIMOVA, M.M., red.; NIKISHOV, A.I., red.; LETSEPIN, V.I.,
 red.; DORMAN, L.I., red.; TULINOV, V.F., red.; ~~ANDOROV, V.M.~~;
 VAVILOV, Yu.N., red.; ABRASIMOV, A.T., red.; FRADKIN, M.I.,
 red.isd-vs; BRUZGUL', V.V., tekhn.red.

[Radiation belts of the earth. Primary cosmic radiation and its
 properties and origin] Radiatsionnyi poias Zemli. Pervichnoe
 kosmicheskoe izluchenie, ego svoistva i proiskhozhdenie. Moskva,
 Isd-vo Akad.nauk SSSR, 1960. 258 p. (Trudy Mezhdunarodnoi
 konferentsii po kosmicheskim lucham, no.3)

(MIRA 14:2)

1. International Conference of Cosmic Radiation.
 (Cosmic rays)

ZHDANOV, G.B., glav. red.; IVANENKO, I.P., pom. glav. red.; ZATSEPIN,
V.I., red. toma; KHRENOV, V.A., pom. red. toma; GERASIMOVA,
N.M., red.; NIKISHOV, A.I., red.; DORMAN, L.I., red.; TULINOV,
V.F., red.; SYROVATSKIY, S.I., red.; FEDOROV, V.M., red.;
VAVILOV, Yu.N., red.; ABROSIMOV, A.T., red.

Proceedings of the Moscow Cosmic Ray Conference, July 6-11, 1959. Moscow.
Vol.2. Extensive air showers and cascades process. 1960. 331 p.
(No subject heading)

ZHDANOV, G.B., glav. red.; IVANENKO, I.P., pom. glav. red.; GERASIMOVA,
N.M., red. toma; NIKISHOV, A.I., pom. red. toma; ZATSEPIN, V.I.,
red.; KHRENOV, V.A., red.; DORMAN, L.I., red.; TULINOV, V.F.,
red.; SYROVATSKIY, S.I., red.; FEDOROV, V.M., red.; VAVILOV, Yu.N.,
red.; ABROSIMOV, A.T., red.;

Proceedings of the Moscow Cosmic Ray Conference. July 6-11,
1959. Moscow. Vol.1. 1960. 333 p.
(No subject heading)

GERASIMOVA, N.M., otv.red.toma; NIKISHOV, A.I., zamstitel' red.toma;
ZHDANOV, G.B., glavnyy red.; IVANKENKO, I.P., zamstitel' glavnogo
red.; ZATSEPIN, V.I., red.; KHRNOV, B.A., red.; DORMAN, L.I., red.;
TULINOV, V.P., red.; SYROVATSKIY, S.I., red.; FEDOROV, V.M., red.;
VAVILOV, Yu.N., red.; ABROSIMOV, A.T., red.; GUROV, K.P., red.izd-vn;
BRUZGUL', V.V., tekhn.red.

[Transactions of the International Conference on Cosmic Rays] Trudy
Mezhdunarodnoi konferentsii po kosmicheskim lucham. Moskva, Izd-vo
Akad.nauk SSSR. Vol.1. [Nuclear interactions at energies of 10^{11} - 10^{14} ev.]
Iadernye vzaimodeistviia pri energiakh 10^{11} - 10^{14} ev. 1960. 335 p.
(MIRA 13:9)

1. Mezhdunarodnaya konferentsiya po kosmicheskim lucham. Moscow, 1959.
(Nuclear reactions)

ZHDANOV, G.B., glavnyy red.; IVANENKO, I.P., zam.glavnogo; red.; ZATSEPIN, V.I., otv.red.toma; KHRANOV, B.A., zam.red.toma; GERASIMOVA, N.M., red.; NIKISHOV, A.I., red.; DORMAN, L.I., red.; TULINOV, V.F., red.; SYROVATSKIY, S.I., red.; FEDOROV, V.M., red.; VAVILOV, Yu.N., red.; AEROSIMOV, A.T., red.; GUROV, K.P., red.isd-va; BERKGAUT, V.G., red.isd-va; BRUZGUL', V.V., tekhn.red.

[Extensive air showers and cascade processes] Shirokie atmosferye
livni i kaskadnye protsessy. Moskva, Izd-vo Akad.nauk SSSR, 1960.
351 p. (Trudy mezhdunarodnoy konferentsii po kosmicheskim lucham,
no.2). (MIRA 13:12)

1. International Conference of Cosmic Radiation.
(Cosmic rays)

ZHDANOV, G.B., glav. red.; IVANENKO, I.P., pom. glav. red.; DORMAN, L.I., red. toma; TULINOV, V.F., pom. red. toma; GERASIMOVA, N.M., red.; NIKISHOV, A.I., red.; ZATSEPIN, V.I., red.; KHRENOV, V.A., red.; SYROVATSKIY, S.I., red.; FEDOROV, V.M., red.; VAVILOV, Yu.N., red.; ABROSIMOV, A.T., red.

Proceedings of the Moscow Cosmic Ray Conference, July 6-11, 1959. Moscow. Vol.14. Variations of cosmic-ray intensity. 1960. 365 p.

(No subject heading)

S/030/60/000/008/011/013
B021/B054

AUTHOR: Fedorov, V. M.

TITLE: Physics of High Energies and Elementary Particles 19

PERIODICAL: Vestnik Akademii nauk SSSR, 1960, No. 8, pp. 120-121 ✓

TEXT: On a proposal of the Institut fiziki Akademii nauk Armyanskoy SSR (Institute of Physics of the Academy of Sciences of the Armyanskaya SSR) the 4th Conference on Problems of the Physics of High Energies and Elementary Particles was held in Yerevan from May 30 to June 4, 1960. It was attended by representatives of the largest institutes of the country which are concerned with the investigation of elementary particles and their interaction with substances at high energies both in accelerators and in cosmic rays. The following reports were delivered: V. I. Gol'danskiy; On problems of interaction of γ -quanta and electrons with substances; N. G. Afanas'yev; On the working program for investigating the nuclear structure by means of high-energy electrons produced by the linear accelerator of the Fiziko-tekhnicheskiy institut Akademii nauk

Card 1/3

Physics of High Energies and
Elementary Particles

S/030/60/000/008/011/013
B021/B054

USSR (Physical and Technical Institute of the Academy of Sciences of the UkrSSR); L. B. Okun'; Theoretical analysis of weak interactions; M. I. Dayon; On the method of recording charged particles by means of a spark counter developed by the Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Institute of Physics imeni P. N. Lebedev of the Academy of Sciences USSR). A session dealing with the properties of this apparatus was attended by representatives of the Physics Institute imeni P. N. Lebedev, the Ob'yedinennyy institut yadernykh issledovaniy (Joint Institute of Nuclear Research), the Institut fiziki Akademii nauk Gruzinskoy SSR (Institute of Physics of the Academy of Sciences of the Gruzinskaya SSR); M. L. Ter-Mikaelyan showed that a specific radiation must arise during the motion of a charged particle of high energy in a medium with a periodically changing index of the dielectric constant. D. S. Chernavskiy and I. M. Dremin dealt with problems of interaction. These problems were also dealt with by V. N. Gribov, I. Ya. Pomeranchuk, and V. B. Berestetskii at the Institut teoreticheskoy i eksperimental'noy fiziki Akademii nauk SSSR (Institute of Theoretical and Experimental Physics of the Academy of Sciences USSR). N. L. Grigorov reported on the

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Physics of High Energies and
Elementary Particles

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experimental investigation of interactions of high-energy particles by
means of a new ionization calorimeter. V. M. Kharitonov reported on an
electron cyclotron developed at the Institute of Physics of the Academy
of Sciences of the Armyanskaya SSR. Finally, the participation of A. B.
Migdal, B. M. Pontekorvo, N. L. Grigorov in the discussion is mentioned.

Card 3/3

DIKHCVA, Zinaida Ivanovna; FEDOROV, Vladimir Mikhaylovich; MATVEYEVA,
A.V., red., HAZEL', Ye.I., tekhn. red.

[Radioactive phosphorus P^{32}] Radioaktivnyi fosfor - P^{32} . Mo-
skva, Gos.izd-vo lit-ry v oblasti atomnoi nauki i tekhniki,
1961. 22 p. (MIRA 15:1)

(Phosphorus—Isotopes)

YAVILOV, Yu.N.; FEDOROV, V.K.

Research on the physics of cosmic rays. Vest. AN SSSR 31
no.10:126-128 0 '61. (MIRA 14:9)
(Cosmic rays--Congresses)

LEBEDINA, Ye.D.; FEDOROV, V.K.; FAYNBERG, V.Ya., kand.fiz.-matem.nauk;
BARCHUKOV, A.I., kand.tekhn.nauk; FESENKOV, V.G., akademik;
FUCHEROV, V.F., doktor khim.nauk; DZERDZEYEVSKIY, B.I., prof.;
SHAPIRO, G.S., doktor tekhn.nauk; KULAGINA, O.S.; UDAL'TSOVA, Z.V.,
doktor istor.nauk; LILPACHEV, D.S.

Brief notes. Vest. AN SSSR 32 no.1:119-170 Ja '62. (MIRA 15:1)
(Scientific societies) (Research)

FEDOROV, V.M.

"Electrodeless" method of determining the electric conductance
of solutions. Zhur.fiz.khim. 36 no.5:1043-1045 My '62.
(MIRA 15:8)

1. Voronezhskiy sel'skokhozyaystvennyy institut.
(Electric conductivity) (Solution (Chemistry))

IVANOV, Yu.S.; IFDOROV, V.M.

"Dead time" of a Wilson chamber. Trib. i tekhn. eksp. 8 no.6:
42-44 N-D '63. (MIRA 17:6)

1. Fizicheskiy institut AN SSSR.

FEDOROV, V.M.

A 150 1. Wilson chamber. Prib. 1 tekhn. eksp. 8 no. 6:44-45
N-D '63. (MIRA 17:6)

1. Fizicheskiy institut AN SSSR.

S/056/63/044/002/017/065
B102/B106

AUTHORS: Vavilov, Yu. N., Pugacheva, G. I., Fedorov, V. M.

TITLE: The muon groups near the axis of extensive air showers

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 44,
no. 2, 1963, 487-492

TEXT: An arrangement of hodoscope and G-M counters, a cloud chamber with seven brass plates (120 g/cm^2 each) as muon detector and a Cherenkov counter (5 m high, basic diameter 6.5 m) for better location of the shower axis, was exposed to extensive air showers ($10^3 \leq N \leq 10^5$) at sea level (Moscow). The Cherenkov counter was filled with water which served both as radiator and as filter. Between this counter and the cloud chamber there was a 16.5-cm thick lead plate to absorb the electron-photon avalanches due to π^0 decays in the water. Thus the matter above the cloud chamber amounted to 700 g/cm^2 . A total of 1940 hodoscope counters (0.01 m^2 each) arranged topmost, served for determining the power and position of the shower axis and two other groups of 48 counters each were arranged 8 m distant from the center of the apparatus. The detection units
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S/056/63/044/002/017/065
B102/B186

The muon groups near the ...

were connected in triple and double coincidence. The following results were obtained:

number of muons per group (n_μ)	2	3	4
number of groups with given n_μ intensity	20	5	2
mean of the shower	$1.8 \cdot 10^4$	$2.2 \cdot 10^4$	$1.5 \cdot 10^4$
mean distance of group center from shower axis, m	4.8	1.7	3.9

The results of an analysis of the spatial distributions of the shower axes and of the muon groups are compared with results obtained by S. N. Vernov et al. (ZhETF, 37, 1193, 1959; 39, 510, 1960). It was found that if muon groups with a diameter of ≤ 8 cm exist, their probability of appearance is at least 70 times smaller than that according to Vernov et al. The lowest energy of muons contained in one of the 27 groups selected was ≥ 3.5 Bev when entering the cloud chamber. If this limit is extrapolated to the top of the Cherenkov counter a value of ≥ 5 Bev is

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The muon groups near the ...

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obtained. The distribution of the distances between the muon trajectories in groups with two or more parallel tracks was analyzed in order to find out if there is a genetic relation between such muons. It was found that none exists for muons with track distances of ≥ 0.3 m. There are 6 figures and 1 table.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR
(Institute of Physics imeni P. N. Lebedev of the Academy of Sciences USSR)

SUBMITTED: September 13, 1962

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FEDOROV, V.M.; GLAZUN, B.A.; ZHILINKOV, I.V.; DUBININ, M.M.

Dielectric properties of water adsorbed by zeolites. Report No.1:
Dielectric losses in the system NaA zeolite crystals - water at
low primings. Izv. AN SSSR Ser. khim. no.11:1930-1934 N '64
(MIRA 18:1)

1. Voronezhskiy sel'skokhozyaystvennyy institut i Institut
fizicheskoy khimii AN SSSR.

VAVILOV, Y.I.N.; PUGACHEVA, G.I.; FUDAKHOV, V.M.

Importance of underwater measurements of μ -meson intensity
at great depths. Izv. AN SSSR. Ser. fiz. 28 no.11:1857-1860
N '64. (MIRA 17:12)

1. Fizicheskiy institut im. P.N. Lebedeva AN SSSR.

L 01164-56 EWT(1)/EWF(n)-2/EWG(m) IJP(c) AT

ACCESSION NR: AP5016652

UR/0382/65/000/002/0044/0054

533.95 : 621.0.082.78

AUTHOR: Fedorov, V. M. 11.55

TITLE: Investigation of the "Rel'sotron" acceleration of plasma across a magnetic field

SOURCE: Magnitnaya gidrodinamika, no. 2, 1965, 44-54

TOPIC TAGS: plasma acceleration, electrode potential, plasmoid, MHD flow

ABSTRACT: Plasma acceleration ^{21.44.55} in the transverse magnetic field of a "Rel'sotron" device (rail-type accelerator) with flat strip electrodes is investigated. This is an experimental study using probes for potential measurements at the end of the rail, image converter photography for velocity determination and observation of instabilities. The accelerator design utilizes magnetic mirror configuration for helium plasma confinement. The design of the electrical circuit is given. Particle injection into "Rel'sotron" varied from 10^{14} to 10^{15} with a consequent pre-ionization. The exit velocity obtained was about 10^6 m/sec with total number of particles in the accelerated plasma reaching 3×10^{17} . In addition, study of plasma dimensions is reported and its dependence on various parameters is shown. Elec-

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ACCESSION NR: AP5016652

trode effects are also discussed. The experiment shows a growth of plasma instability and that the main influence on plasma acceleration is the process occurring near electrode surfaces. "In conclusion I wish to thank Yu. Ye. Nesterikhin for his interest, M. I. Kitayev for building basic parts of the apparatus, and V. M. Luk'yanov for his assistance in the experiment." Orig. art. has: 10 formulas, 7 figures.

ASSOCIATION: none

SUBMITTED: 24Sep64

ENCL: 00

SUB CODE: NE, EM

NO REI SOV: 004

OTHER: 006

Card 2/2

16-05 FWT(m)/T/EWA(m)-2
AP501108

5/015/65/001/001/0000/0027

Vavilov, Yu. N.; Pugacheva, G. I.; Fedorov, I. M.

The analysis of Mu-meson absorption in matter at large depths

SOURCE: Yadernaya fizika, v. 1, no. 1, 1965, 60-63

TOPIC TAGS: Mu meson absorption, photonuclear energy loss, deep muon absorption, mu meson energy spectrum, high energy muon, cosmic ray, photon cross section

ABSTRACT: Experimental data concerning the intensity of cosmic ray μ -mesons at large depths, connected with the question of energy losses of μ -mesons and their decay

Card 1/2

L 41016-65

ACCESSION NR: AP5007708

... AN SSSR, series (1957-1960). Limits due to ...
... have been established for the ... energy

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... of the Academy of Sciences, USSR,

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ENCLOSURE

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OTHER

Card 2/2

L 36936-66 EWT(1)/FCC GW

ACC NR: AT6023555

SOURCE CODE: UR/3095/66/036/000/0031/0036

AUTHOR: Vavilov, Yu. N.; Nelapo, B. A.; Pugacheva, G. I.; Fedorov, V. M.

ORG:

TITLE: Device for measuring cosmic-ray intensity at great depths

SOURCE: AN UkrSSR. Morskoy gidrofizicheskiy institut. Trudy, v. 36, 1966, Metody i pribory dlya issledovaniya fizicheskikh protsessov v okeane (Methods and instruments for studying physical processes in the ocean), 31-36

TOPIC TAGS: cosmic ray, Cherenkov counter, bremsstrahlung, photonuclear energy, electromagnetic field, atomic nucleus, COSMIC RAY INTENSITY, OCEAN PROPERTY

ABSTRACT: Ten times less cosmic rays than γ -rays are absorbed in water. Cosmic rays recorded in ground with a water equivalent of 20-m depth consist of μ -mesons as particles with the most penetrating ability. The absorption of μ -mesons by matter during interaction may be computed by the energy loss using the formula

$$\frac{dE}{dx} = a + (b_e + b_p + b_{ya})E,$$

where E is the energy of a μ -meson, x is the depth of the absorber, expressed in

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